IN THE CLAIMS:

Please amend claim 1 as shown below, in which deleted terms are indicated with strikethrough and/or double brackets, and deleted terms are indicated with underlining. Also, please add new claims 79-80 as shown below.

1. (Currently amended) A composite structure comprising a structure made of at least one of a brittle ceramic and a brittle metalloid formed on a substrate surface, wherein the formed structure is polycrystalline and crystals forming the structure do not substantially exhibit crystal orientation, a boundary layer made of hyaline does not substantially exist on a boundary face between said crystals, and part of the formed structure is an anchor section biting into the substrate ~~surface and wherein elements other than main elements forming the crystals do not segregate on the boundary face of the crystals forming the structure~~.

2. (Original) The composite structure according to claim 1, wherein the crystals forming the structure do not involve grain growth by heat.

3. (Previously presented) The composite structure according to claim 1, wherein the average crystallite size of the formed structure is 500 nm or less and the compactness thereof is 70% or more.

4. (Previously presented) The composite structure according to claim 1, wherein the average crystallite size of the formed structure is 100 nm or less and the compactness thereof is 95% or more.

5. (Previously presented) The composite structure according to claim 1, wherein the average crystallite size of the formed structure is 50 nm or less and the compactness thereof is 99% or

more.

6. (Original) The composite structure according to claim 1, wherein the aspect ratio of the crystals forming the structure is 2.0 or less.

7. Cancelled.

8. (Original) The composite structure according to claim 1, wherein there is a nonstoichiometric deficiency near the boundary face of the crystals forming the structure.

9. (Original) The composite structure according to claim 8, wherein the crystals are metallic oxides and the nonstoichiometric deficiency exhibits nonstoichiometry based on an oxygen deficiency.

10. (Previously presented) The composite structure according to claim 1, wherein the substrate is one of glass, metal, ceramics and an organic compound.

11-72. Cancelled.

73. (Previously presented) A composite structure comprising a structure made of at least one of a brittle ceramic and a brittle metalloid formed on a substrate surface, wherein the formed structure is polycrystalline and crystals forming the structure do not substantially exhibit crystal orientation, a boundary layer made of hyaline does not substantially exist on a boundary face between said crystals, and part of the formed structure is an anchor section biting into the substrate surface and wherein the average crystallite size of the formed structure is 50 nm or less and the compactness thereof is 99% or more.

74. (Previously presented) The composite structure according to claim 73, wherein the crystals forming the structure do not involve grain growth by heat.

75. (Previously presented) The composite structure according to claim 73, wherein the aspect

ratio of the crystals forming the structure is 2.0 or less.

76. (Previously presented) The composite structure according to claim 73, wherein there is a nonstoichiometric deficiency near the boundary face of the crystals forming the structure.

77. (Previously presented) The composite structure according to claim 76, wherein the crystals are metallic oxides and the nonstoichiometric deficiency exhibits nonstoichiometry based on an oxygen deficiency.

78. (Previously presented) The composite structure according to claim 73, wherein the substrate is one of glass, metal, ceramics and an organic compound.

79. (New) A composite structure comprising a structure made of at least one of a brittle ceramic material and a brittle metalloid material formed on a substrate surface, wherein the formed structure is polycrystalline, when crystals forming the structure are measured by X-ray diffraction, displacement of four major peaks is 30% or less in a case where results of the integrated intensity calculation of the peaks are shown by an intensity ratio and JCPDS (ASTM) data of the brittle material is set as a reference, and wherein a boundary layer made of hyaline does not substantially exist on a boundary face between the crystals, and part of the formed structure is an anchor section biting into the substrate surface.

80. (New) A composite structure comprising a structure made of at least one of a brittle ceramic material and a brittle metalloid material formed on a substrate surface, wherein the formed structure is polycrystalline, when crystals forming the structure are measured by X-ray diffraction, displacement of four major peaks is 30% or less in a case where results of the integrated intensity calculation of the peaks are shown by an intensity ratio and results for raw powder are measured by a thin coat optical system are set as a reference of a non-orientation

state, and wherein a boundary layer made of hyaline does not substantially exist on a boundary face between the crystals, and part of the formed structure is an anchor section biting into the substrate surface.

81. (New) A composite structure forming method comprising, after performing a step of creating internal strain in brittle material fine particles, the steps of:

causing the brittle material fine particles in which the internal strain has been created to collide with a substrate surface at high speed;

deforming or fracturing the brittle material fine particles by the impact of this collision;

rejoining the fine particles through an active new surface generated by the deformation or fracture;

forming an anchor section made of polycrystalline brittle material of which part bites into the substrate surface at a boundary section between the new surface and a substrate; and

forming a structure made of the polycrystalline brittle material on the anchor section.

82. (New) The composite structure forming method according to claim 81, wherein the step of creating the internal strain in the brittle material fine particles involves imparting an impact to the fine particles to such a degree that re-cohesion is not caused.

83. (New) The composite structure forming method according to claim 81, wherein the internal strain created by the step of applying the internal strain is in a range between 0.25% and 2.0%.

84. (New) The composite structure forming method according to claim 81, wherein the average size of the brittle material fine particles after the step of creating the internal strain has been performed is 0.1 ~ 5 μm and the speed of the brittle material fine particles upon collision

with the substrate is 50 ~ 450 m/s.

85. (New) The composite structure forming method according to claim 81, wherein the average size of the brittle material fine particles after the step of creating the internal strain has been performed is 0.1 ~ 5 μm and the speed of the brittle material fine particles upon collision with the substrate is 150 ~ 400 m/s.

86. (New) The composite structure forming method according to claim 81, wherein this forming method is performed at room temperature.

87. (New) The composite structure forming method according to claim 81, wherein, after the structure made of the polycrystalline brittle material is formed, the structure is heated at a temperature lower than the melting point of the brittle material for structured control of the crystals.

88. (New) The composite structure forming method according to claim 81, wherein this forming method is performed under reduced pressure.

89. (New) The composite structure forming method according to claim 81, wherein the step of causing the brittle material fine particles to collide with the substrate surface at high speed involves ejecting an aerosol containing scattered brittle material fine particles in a gas toward the substrate at high speed.

90. (New) The composite structure forming method according to claim 89, including a further step of controlling at least one of a type and a partial pressure of the gas to control a deficiency of elements of a compound forming the structure made of the brittle material.

91. (New) The composite structure forming method according to claim 89, wherein the partial pressure of oxygen in the gas is controlled to control the oxygen concentration in the

structure made of the brittle material.

92. (New) The composite structure forming method according to claim 89, wherein the brittle material fine particles are formed of an oxide, and the method further includes a step of controlling a partial pressure of oxygen in the gas to form an oxygen deficient layer of the oxide near the boundary face of crystals in the structure made of the brittle material fine particles.

93. (New) The composite structure forming method according to claim 89, including a further step of controlling at least one of a type and a partial pressure of the gas to control electric properties, mechanical properties, chemical properties, optical properties and magnetic properties of the structure made of the brittle material.

94. (New) The composite structure forming method according to claim 89, wherein the partial pressure of oxygen in the gas is controlled to control electrical properties, mechanical properties, chemical properties, optical properties and magnetic properties of the structure made of the brittle material.

95. (New) Brittle material fine particles for forming a structure on a substrate surface, wherein the particles deform or fracture upon collision with a substrate or when a mechanical impact is imparted thereto, and the particles are provided with internal strain such that the particles generate an active new surface after being fractured or deformed.

96. (New) The brittle material fine particles according to claim 95, wherein the internal strain of the fine particles is 0.25% ~ 2.0%.

97. (New) The brittle material fine particles according to claim 95, wherein the average size of the fine particles is 0.1 ~ 5 μm.

98. (New) A composite structure formed according to the method of claim81.

99. (New) A composite structure formed according to the method of claim82.

100. (New) A composite structure formed according to the method of claim83.

101. (New) A composite structure formed according to the method of claim84.

102. (New) A composite structure formed according to the method of claim85.

103. (New) A composite structure formed according to the method of claim86.

104. (New) A composite structure formed according to the method of claim87.

105. (New) A composite structure formed according to the method of claim88.

106. (New) A composite structure formed according to the method of claim89.

107. (New) A composite structure formed according to the method of claim 90.

108. (New) A composite structure formed according to the method of claim 91.

109. (New) A composite structure formed according to the method of claim 92.

110. (New) A composite structure formed according to the method of claim 93.

111. (New) A composite structure formed according to the method of claim 94.